

Weekly Report

15th April, 2018

Done:

1. Had a discussion about the research topic of fire data. As the funding is about Graph, we start by *graph exploration and recommendations*.

We consider nodes as different fires (with attributes), edges represent similarities of certain attributes. Most recommendation algorithm requires user ratings, which is not available in our scenario.

Tarik recommended a paper about graph DOI (Search, Show Context, Expand on Demand: Supporting Large Graph Exploration with Degree-of-Interest), which provides a feasible starting point: start from a node, show context; the system will recommend more potential interesting nodes based on user interaction and data properties. This kind of recommendation **doesn't require initial user ratings**.

Besides, there is a VIS 17 paper about *interactive specification of attribute-based edges* (Graphiti: Interactive Specification of Attribute-based Edges for Network Modeling and Visualization). Given a tabular dataset, choose two nodes, the system will recommend the linking (correlation) between them. Users choose one link condition, and the system will update the whole dataset to construct a graph based on that type of link. Users can dynamically update the links and explore the dataset. When constructing the fire data graph, we can also consider providing a flexible way for analysts.

2. Found another weather data API. It is more organized and fast compare to MesoWest after testing. To display these data, I can simply make requests in the front-end.

3. Finished watching the lectures and the assignments of Course 1 and the 1st week of Course 2 in deeplearning.ai.

4. Reviewed the VAST paper. I will summarize the reviews next week. I rated the paper as borderline, since the design is not novel, and the algorithm lacks strong validation.

To Do:

1. Finish some minor bugs and implement two features of the system. (1) timeline (2) lag of geojson on deck.gl map (3) polygon selection (4) weather data display

2. Discuss further about the above topics about graph and recommendation. The edge specification

Paper reading:

Three of them mentioned above.

Network-based recommendation algorithms: A review 主要还是基于二部图; 通过一些图论方法如随机游走来模拟一些关联. 当然也有更多一维度变成散布图的. 其本身方法并不适用我们的场景.

